

WHAT IS CLAIMED IS:

1. A method for dispatching a burst of test packets onto a network,  
the method comprising:
  - 5 generating a plurality of test packets;  
forwarding to an I/O completion port a request that the test  
packets be dispatched; and,  
dispatching the test packets onto the network using the I/O  
completion port.
- 10 2. The method of claim 1 wherein the packets are forwarded to the  
I/O completion port asynchronously;
- 15 3. The method of claim 1 wherein forwarding the test packets to the  
I/O completion port is performed by a user mode thread during a  
single time slice.
4. The method of claim 3 comprising:
  - 20 before forwarding the test packets, terminating the current  
time slice for the user thread; and forwarding the test packets to  
the I/O completion port at a start of a next time slice for the user  
thread.
5. The method of claim 4 comprising assigning a time-critical  
25 priority to the user mode thread.
6. The method of claim 3 comprising assigning a time-critical  
priority to the user mode thread.

7. The method of claim 3 wherein the user mode thread accesses directly buffers in a network interface device.
- 5 8. The method of claim 3 comprising receiving returning dispatched test packets after they have traversed a path in the network and time stamping notifications that the packets have been received.
- 10 9. The method of claim 8 wherein the user mode thread creates in advance, or has created for it in advance, buffers sufficient for receiving all of the returning dispatched test packets.
10. The method of claim 9 wherein the user mode thread uses a hardware counter for time stamping returning packets.
- 15 11. The method of claim 9 comprising maintaining a private heap for packet data, wherein the private heap is accessible to the user mode thread.
- 20 12. The method of claim 11 wherein the private heap comprises standard-size allocation units for storing packets.
13. The method of claim 12 wherein the standard-size allocation units are of an operating system memory page size.
- 25 14. The method of claim 13 wherein the standard-size allocation units are 4096 bytes.
15. The method of claim 11 comprising assigning a larger than default process working set size to the user mode thread.

16. The method of claim 15 wherein the process working set size exceeds 8 Mbytes.
- 5 17. The method of claim 3 wherein the user mode thread accesses directly buffers in a network card from which the test packets are dispatched onto the network.
- 10 18. The method of claim 1 wherein generating the test packets comprises generating a plurality of equal-sized test packets.
19. The method of claim 1 wherein generating the test packets comprises generating ethernet test packets.
- 15 20. The method of claim 18 wherein generating the test packets comprises generating a plurality of equal-sized test packets wherein each of the test packets has a size in the range of 46 bytes to 1500 bytes.
- 20 21. The method of claim 1 comprising, receiving from the I/O completion port notifications that the packets have been dispatched and time stamping the notifications.
- 25 22. The method of claim 8 wherein receiving the returning dispatched packets comprises passing data for the returning dispatched packets through an I/O completion port associated with a network interface at which the returning dispatched packets are received.
- 30 23. A program product comprising a computer-readable medium carrying computer-readable signals comprising instructions which, when executed by a computer processor, cause the computer

processor to execute a method for dispatching a burst of test packets onto a network, the method comprising:

generating a plurality of test packets;

forwarding to an I/O completion port a request that the test packets be dispatched; and,

dispatching the test packets onto the network using the I/O completion port.

24. The program product of claim 18 wherein the instructions comprise a controller section and a test handler section wherein the controller section and test handler section each comprise a separate thread.

25. Apparatus for dispatching bursts of packets onto a computer network, the apparatus comprising:  
a computer processor;  
a network interface;  
a program memory accessible to the processor, the program memory comprising test packet sequencer software comprising a series of instructions executable by the processor under control of an operating system, the instructions, if executed by the processor, causing the processor to:

establish a first I/O completion port;

generate a plurality of test packets;

forward to the first I/O completion port a request that the test packets be dispatched; and,

dispatch the test packets onto the network by way of the network interface under control of the first I/O completion port.

26. The apparatus of claim 25 wherein the test packet sequencer software comprises a test controller layer associated with a second I/O completion port and a command controller layer associated with the first I/O completion port, wherein the test controller layer is configure to pass commands to the command controller layer by way of the first I/O completion port and the command controller layer is configured to pass raw data to the test controller layer by way of the second I/O completion port.
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